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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,912	03/05/2002	Richard R. Bott	GC724	9189

5100 7590 07/08/2008

GENENCOR INTERNATIONAL, INC.
ATTENTION: LEGAL DEPARTMENT
925 PAGE MILL ROAD
PALO ALTO, CA 94304

EXAMINER	
STEADMAN, DAVID J	

ART UNIT	PAPER NUMBER
1656	

MAIL DATE	DELIVERY MODE
07/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/091,912	BOTT ET AL.	
	Examiner	Art Unit	
	David J. Steadman	1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,39-41 and 45-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,39-41 and 45-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/10/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *Appendix A sequence alignment*.

DETAILED ACTION

Status of the Application

[1] Claims 1, 39-41, and 45-55 are pending in the application.

[2] Applicant's amendment to the claims, filed on 4/10/08, is acknowledged. This listing of the claims replaces all prior versions and listings of the claims. Claims 1, 39-41, and 45-55 have been amended relative to the claim listing filed on 8/23/07. While "45" in claim 48 is underlined, the text "45" was added in the claimed amendment filed on 8/23/07.

[3] Receipt of a substitute sequence listing in computer readable form (CRF), a statement of sameness, and a statement that no new matter has been added to the specification by the paper copy of the sequence listing, all filed on 4/10/08, is acknowledged.

[4] Receipt of an information disclosure statement, filed on 4/10/08, is acknowledged.

[5] Applicant's arguments filed on 4/10/08 in response to the non-final Office action mailed on 11/14/07 have been fully considered and are deemed to be persuasive to overcome some of the rejections and/or objections previously applied. Rejections and/or objections not reiterated from previous Office actions are hereby withdrawn.

[6] The text of those sections of Title 35 U.S. Code not included in the instant action can be found in a prior Office action.

Sequence Compliance

[7] In order to perfect sequence compliance, applicant should submit a specification amendment directing entry of the substitute sequence listing into the specification.

Information Disclosure Statement

[8] The reference cited in the information disclosure statement filed on 4/10/08 has been considered by the examiner. A copy of Form PTO-1449 is attached to the instant Office action.

Specification/Informalities

[9] The amendment filed on 4/10/08 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the sequence listing filed on 4/10/08, which lists the amino acid sequence of SEQ ID NO:3. According to the instant remarks at p. 5, bottom, "SEQ ID NO:3…is identical to SEQ ID NO:2…but without the 14 amino acid leader sequence". Applicant fails to show support in the application as filed and the examiner can find no apparent support for the amino acid sequence of SEQ ID NO:3. Applicant is invited to show support for the amino acid sequence of SEQ ID NO:3 in the original application.

[10] The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction

of the following is required: there appears to be no reference to the amino acid sequence of SEQ ID NO:3 and the specification appears to only disclose mutants of SEQ ID NO:2, not mutants of SEQ ID NO:3. See, *e.g.,* p. 9, line 10-12 and p. 10, lines 14-17. As such, the specification fails to provide proper antecedent basis for the mutants of SEQ ID NO:3 as claimed.

Claim Rejections - 35 USC § 112, Second Paragraph

[11] The rejection of claims 1, 39-41, and 45-55 as being unclear is withdrawn in view of the instant claim amendment to recite SEQ ID NO:3 as the reference sequence for the recited substitutions at position 180, positions 180 and 205, positions 178, 180, and 205.

Claim Rejections - 35 USC § 112, First Paragraph

[12] Claims 1, 39-41, and 45-55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

MPEP § 2163.II.A.3.(b) states, "when filing an amendment an applicant should show support in the original disclosure for new or amended claims" and "[i]f the originally filed disclosure does not provide support for each claim limitation, or if an element which applicant describes as essential or critical is not claimed, a new or

amended claim must be rejected under 35 U.S.C. 112, para. 1, as lacking adequate written description". According to MPEP § 2163.I.B, "While there is no in haec verba requirement, newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure" and "The fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. See, e.g., *Vas-Cath, Inc.*, 935 F.2d at 1563-64, 19 USPQ2d at 1117".

Claims 1, 39, 45 and 53 (and claims dependent therefrom) have been amended to recite the amino acid sequence of SEQ ID NO:3. As noted above, according to the instant remarks at p. 5, bottom, "SEQ ID NO:3…is identical to SEQ ID NO:2…but without the 14 amino acid leader sequence". Applicant fails to show support for this newly added claim limitation in the application as filed and the examiner can find no apparent support for the amino acid sequence of SEQ ID NO:3. In this case, the original application was filed with two sequences, *i.e.,* SEQ ID NO:1 and 2 and the examiner can only find mention of SEQ ID NO:1 and 2 as *P. mendocina* cutinase in the application as filed. See, *e.g.,* p. 9, lines 9-10. Applicant is invited to show support for the amino acid sequence of SEQ ID NO:3 in the original application.

[13] The written description rejection of claims 1, 39-41, and 45-55 under 35 U.S.C. 112, first paragraph, is withdrawn in view of the instant claim amendment. The amino acid sequences of the cutinase variants of the claims has been limited to SEQ ID

NO:3, except for the specifically recited mutation(s) at position 180, position 180 and 205, or position 178, 180, and 205.

[14] The scope of enablement rejection of claims 1, 39-41, and 45-55 under 35 U.S.C. 112, first paragraph, is withdrawn in view of the instant claim amendment. As noted above, the amino acid sequence of the cutinase variant of the claims has been limited to SEQ ID NO:3, except for the specifically recited mutation(s) at position 180, position 180 and 205, or position 178, 180, and 205.

Claim Rejections - 35 USC § 103

[15] Claim(s) 39-41 and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poulouse et al. (US Patent 5,352,594; reference A of the 1/29/04 PTO-892; "Poulouse"). The claims are drawn to variants of *P. mendocina* cutinase having mutation at position 180 of SEQ ID NO:3, wherein the variant has an altered characteristic as encompassed by the claims.

Poulouse teaches *P. mendocina* has an amino acid sequence that is 100% identical to SEQ ID NO:3 herein (see column 3, bottom to column 6, top of Poulouse; see also Appendix A sequence alignment). Poulouse teaches that it would be useful to modify *P. mendocina* cutinase in order to alter its perhydrolysis/hydrolysis ratio, kcat, and Km (column 2, lines 52-54). In order to do this, Poulouse suggest altering an amino acid within "about six amino acids on either side of a catalytic amino acid" of *P. mendocina* cutinase (column 5, lines 42-57). See also claim 4 of Poulouse, which

narrows the alteration(s) to within four amino acids of the catalytic amino acid. Poulouse et al. identify Ser126, Asp176, and His206 as the *P. mendocina* cutinase catalytic triad amino acids (column 7, lines 12-14). Poulouse et al. suggest replacing each of the amino acids within six of the catalytic triad with the 19 other amino acids to select for those that have the "best ratio or substrate specificity" (column 6, lines 41-47).

The difference between Poulouse and the claimed invention is that Poulouse does not expressly teach the recited mutants.

However, at the time of the invention, it would have been obvious to one of ordinary skill in the art to mutate position 180 of the *P. mendocina* lipase of Poulouse with any of the 19 other common amino acids, which would have encompassed the recited variant(s) and by virtue of their having the same structures, *i.e.,* amino acid sequences, as the variants of claims 39-41 and 53-55, would have necessarily had the recited altered characteristic. One would have been motivated to do this in order to screen the variant for an optimal activity as suggested by Poulouse. One would have had a reasonable expectation of success for a position 180 mutant of *P. mendocina* lipase because of the results of Poulouse. Therefore, claims 39-41 and 53-55, drawn to the *P. mendocina* cutinase variant as described above would have been obvious to one of ordinary skill in the art at the time of the invention.

[16] Claim(s) 45-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poulouse. The claims are drawn to variants of *P. mendocina* cutinase having mutation at position 180 and 205 of SEQ ID NO:3, wherein the variant has increased

polyesterase activity and/or enhanced thermostability or wherein the variant is more thermostable and has hydrolytic activity on polyester.

The relevant teachings of Poulouse are described above. Poulouse further teaches that multiple substitutions within the six amino acids, or four amino acids of the catalytic triad "can be done to optimize the results" (column 6, lines 47-49) and show working examples of double mutants, comprising mutation of Ser205 (corresponding to position 219 of SEQ ID NO:2 herein) and another amino acid position within six amino acids of the catalytic triad, which maintain catalytic activity (columns 15-18). See also claim 4 of Poulouse, which narrows the range of amino acids to four amino acids within the catalytic triad amino acid. Poulouse does not actually make a double mutant of *P. mendocina* cutinase as encompassed by the claims, nor does Poulouse specifically disclose the parent cutinase has the amino acid sequence of SEQ ID NO:3 herein.

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to mutate positions 180 and 205 of *P. mendocina* lipase of Poulouse with any other of the 19 common amino acids, which would have encompassed the recited variant(s) and by virtue of their having the same structures, *i.e.,* amino acid sequences, as the variant(s) of claims 45-52, would have necessarily had increased polyesterase activity. One would have been motivated to do this because in order to screen the variant according to Poulouse. One would have had a reasonable expectation of success for producing a position 180 and 205 mutant of *P. mendocina* lipase because of the results of Poulouse. Therefore, claims 45-52, drawn to the *P.*

mendocina cutinase variant as described above would have been obvious to one of ordinary skill in the art at the time of the invention.

RESPONSE TO ARGUMENT: Beginning at p. 7, middle of the instant remarks, applicant argues: 1) the Poulouse reference fails to teach any of the claimed variants; 2) and the rejections' inherency rationales are improper because: a) an inherency rational cannot be based on what *could* happen according to a prior art suggestion and b) a disclosure of a broad genus of variants does not suggest the specific variants as claimed.

Applicant's argument is not found persuasive. As noted in prior Office actions, the examiner acknowledges that Poulouse fails to expressly disclose a variant having the specified mutations. However, it is the examiner's position that the structures of the variants as encompassed by the claims would have been obvious at the time of the invention and that such variants, by virtue of their amino acid sequence, would have had the recited increased polyesterase activity. As previously stated, the prior art need not *expressly* teach these limitations. As noted by MPEP 2112, "[t]he express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103." Although Poulouse does not teach the resulting effects of substitution(s) within 4 amino acids of the catalytic triad positions Ser126, Asp176, and His206, the reference nonetheless appears to suggest making individual and substitutions and additionally suggests making multiple substitutions to "optimize the results." As such, one of ordinary skill in the art would have been motivated to make

all combinations of triple mutations within 4 amino acids of positions Ser126, Asp176, and His206, which would encompass the recited mutations. While it is acknowledged that the claims require *specific* amino acid mutations at position 180 or 180 and 205, as noted in the prior Office action, Poulouse expressly suggests replacing each of the amino acids within 4 of the catalytic triad with the 19 other amino acids (column 6, lines 41-47). Thus, according to the teachings of Poulouse, a number of variants would be produced, which would necessarily encompass all position 180 or 180 and 205 variants, including the specifically recited variants. Because the structure, *i.e.,* amino acid sequence, of a polypeptide determines its function, those polypeptides having the specifically recited substitutions as produced according to Poulouse would necessarily possess the recited activity or activities. Although Poulouse does not appear to suggest that such variants will have the recited increased polyesterase activity or enhanced thermostability, "the claiming of a…new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable." See MPEP 2112. Moreover, while achieving all variants as suggested by Poulouse would require some experimentation, Poulouse specifically identifies the limited number of amino acids of *P. mendocina* cutinase (lipase) that are to be mutated and the experimentation required to make all variants as taught by Poulouse is no more than routine.

While applicant appears to take the position that the rejections' inherency rationale is improper, applicant does not appear to dispute that one of ordinary skill in the art would have been motivated to make mutants of SEQ ID NO:3 having the recited

amino acid substitution. Put another way, there appears to be no dispute that the teachings of the prior art provide motivation to make all mutants within 4 amino acids of positions Ser126, Asp176, and His206 of *P. mendocina* cutinase, which would encompass variants at positions 180 or 180 and 205. According to MPEP 2112.01.I, "Where the claimed and prior art products are identical or substantially identical in structure or composition…a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)". Because the structures of the mutants as taught by the prior art would necessarily be identical to those of the claims, which appears to be undisputed by applicant, the resulting function(s) and characteristics of those variants would necessarily be the same as those functions and characteristics as recited in the claims, which also appears to be undisputed by applicant. MPEP 2112.01I further states, "'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d at 1255, 195 USPQ at 433". Here, applicant has failed to provide any evidence that the variants as taught and suggested by the prior art, which would necessarily be structurally identical to the claimed variants, do not necessarily possess the characteristics of the claimed product.

While applicant asserts the prior art does no more than provide an invitation to experiment to produce a broad genus of compounds that have a desired function

different from that recited in the claims, it is noted that the teachings of the prior art point one of ordinary skill in the art to make *all* possible variants within 4 amino acids of positions Ser126, Asp176, and His206 of *P. mendocina* cutinase. While it is acknowledged that Poulouse does not point to the specific species of the claims, because all possible variants would have necessarily been produced, which is undisputed by applicant, the variants as encompassed by the claims would necessarily have been individually produced and screened for the desired activity according to Poulouse. In this way, the prior art necessarily teaches all species encompassed by the claims. While the teachings of the prior art seek to achieve polypeptide variants with function(s) or characteristics other than those recited in the claims, MPEP 2144.IV acknowledges that "The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. See, e.g., *In re Kahn*, 441 F.3d 977, 987, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)".

At least for the reasons of record and the reasons set forth above, the examiner maintains that the position 180 or 180 and 205 variants of SEQ ID NO:3 would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention.

[17] Claim(s) 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Poulouse in view of Schumann et al. (*Protein Sci* 2:1612-1620, 1993; reference U of the 11/14/07 PTO-892; "Schumann"), LoGrasso (*Biochemistry* 30:8463-8470, 1991;

reference V of the 11/14/07 PTO-892; "LoGrasso"), and Cunningham et al. (*Prot Engineer* 1:319-325, 1987; reference W of the 11/14/07 PTO-892; "Cunningham"). Claim 1 is drawn to a variant of SEQ ID NO:2 having substitutions of Met at position 192, Val at position 194, and Gly at position 219, wherein the variant has increased polyesterase activity as compared to SEQ ID NO:2.

Poulouse teaches that it would be useful to modify *P. mendocina* cutinase in order to alter its perhydrolysis/hydrolysis ratio, kcat, and Km (column 2, lines 52-54). In order to do this, Poulouse suggests altering an amino acid within "about six amino acids on either side of a catalytic amino acid" of *P. mendocina* cutinase (column 5, lines 42-57). See also claim 4 of Poulouse, which narrows the alteration(s) to within four amino acids of the catalytic amino acid. Poulouse identifies Ser126, Asp176, and His206 as the *P. mendocina* cutinase catalytic triad amino acids (column 7, lines 12-14). Poulouse suggests replacing each of the amino acids within 6 (or 4) of the catalytic triad with the 19 other amino acids to select for those that have the "best ratio or substrate specificity" (column 6, lines 41-47). Poulouse further teaches that multiple substitutions within the six (or four) amino acids of the catalytic triad "can be done to optimize the results" (column 6, lines 47-49). Poulouse does not make a triple mutant of *P. mendocina* cutinase as encompassed by the claims, nor does Poulouse specifically disclose the parent cutinase has the amino acid sequence of SEQ ID NO:3 herein.

At the time of the invention, it was well-known in the art that multiple mutations can achieve enhancements over single or double mutations. For example, Schumann teaches a triple mutant of a *P. putida* creatinase that has a specific activity greater than

either wild-type, single mutants, or a double mutant (p. 1614, Table 1) and has enhanced thermal stability relative to wild-type, single mutants, or a double mutant, wherein the stability increments are additive (p. 1616, column 1 and Table 3). Also, LoGrasso teaches a triple mutant of human carbonic anhydrase III, wherein the catalytic constant 500-fold higher than wild type (p. 8463, abstract). Further, Cunningham teaches a triple mutant of subtilisin that is more alkaline stable than single or double mutants (p. 319, abstract).

Therefore, at the time of the invention, it would have been obvious to one of ordinary skill in the art to make all possible triple mutants within 4 amino acids of the catalytic triad of the *P. mendocina* lipase with any of the 19 other common amino acids, which would have encompassed the recited variants and by virtue of their having the same structures, *i.e.,* amino acid sequences, as the variants of claim 1, would have necessarily had increased polyesterase activity. One would have been motivated to do this because of the specific guidance of Poulouse to make multiple substitutions within the four amino acids of the catalytic triad in order “to optimize the results” as suggested by Poulouse, and because it was recognized in the prior art that multiple substitutions can achieve a polypeptide with a desired activity that is more enhanced than either single or double mutants as shown by Schumann, LoGrasso, and Cunningham. One would have had a reasonable expectation of success for making all possible triple mutants within 4 amino acids of the catalytic triad of the *P. mendocina* lipase with any of the 19 other common amino acids because of the results of Poulouse. Therefore, claim

1, drawn to the triple mutant as described above, would have been obvious to one of ordinary skill in the art at the time of the invention.

RESPONSE TO ARGUMENT: Beginning at p. 8, bottom of the instant remarks, applicant argues: 1) the cited references fail to teach the recited structures or functions of the claimed variants; and 2) the cited references teach modifying *P. mendocina* cutinase to achieve an activity or activities different from that recited in the claims.

Applicant's argument is not found persuasive. As noted above, the reference of Poulouse suggests making the variants of claims 39-41 and 45-55. While applicant asserts the prior art does not teach the claimed variants, it is noted that the teachings of the prior art point one of ordinary skill in the art to make *all* possible variants within 4 amino acids of positions Ser126, Asp176, and His206 of *P. mendocina* cutinase. While it is acknowledged that Poulouse does not point to the specific species of the claims, because all possible variants would have necessarily been produced, which is undisputed by applicant, the variants as encompassed by the claims would necessarily have been individually produced and screened for the desired activity according to Poulouse. In this way, the prior art necessarily teaches all species encompassed by the claims. While the teachings of the prior art seek to achieve polypeptide variants with function(s) or characteristics other than those recited in the claims, MPEP 2144.IV acknowledges that "The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same

advantage or result discovered by applicant. See, e.g., *In re Kahn*, 441 F.3d 977, 987, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)".

At least for the reasons of record and the reasons set forth above, the examiner maintains that the position 178, 180, and 205 variants of SEQ ID NO:3 would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention.

Conclusion

[18] Status of the claims:

- Claims 1, 39-41, and 45-55 are pending.
- Claims 1, 39-41, and 45-55 are rejected.
- No claim is in condition for allowance.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Steadman whose telephone number is 571-272-0942. The examiner can normally be reached on Mon to Thurs, 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen Kerr Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/David J. Steadman/
David J. Steadman, Ph.D.
Primary Examiner
Art Unit 1656

APPENDIX A

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AAR60880
ID   AAR60880 standard; protein; 258 AA.
XX
AC   AAR60880;
XX
DT   25-MAR-2003  (revised)
DT   02-JUN-1995  (first entry)
XX
DE   Pseudomonas mendocina lipase (ATCC 53552).
XX
KW   Pseudomonas mendocina lipase; perhydrolysis/hydrolysis ratio;
KW   substrate specificity; catalytic efficiency.
XX
OS   Pseudomonas mendocina.
XX
PN   US5352594-A.
XX
PD   04-OCT-1994.
XX
PF   30-JUN-1992;   92US-00908596.
XX
PR   29-MAY-1984;   84US-00614491.
PR   29-MAY-1984;   84US-00614612.
PR   29-MAY-1984;   84US-00614615.
PR   29-MAY-1984;   84US-00614617.
PR   30-APR-1986;   86US-00858594.
PR   09-SEP-1986;   86US-00905363.
PR   21-AUG-1987;   87US-00086869.
PR   19-DEC-1988;   88US-00287316.
PR   11-MAR-1991;   91US-00668311.
XX
PA   (GEMV ) GENENCOR INC.
XX
PI   Poulouse AJ;
XX
DR   WPI; 1994-316185/39.
XX
PT   Altering Pseudomonas mendocina lipase activity - by replacing amino acids
PT   to increase perhydrolysis/hydrolysis ratios, substrate specificity or
PT   catalytic efficiency.
XX
PS   Claim 1; Col 3-6; 13pp; English.
XX
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CC   AAR60880 describes the amino acid sequence of Pseudomonas mendocina
CC   lipase, which contains a catalytic triad consisting of Ser 126, His 206
CC   and Asp 176. By replacing at least one amino acid within four residues of
CC   the amino-terminal or carboxy-terminal end of Ser 126, His 206 or Asp 176
CC   the activity of the enzyme can be altered. Preferrably increasing the
CC   perhydrolysis/hydrolysis ratio, the substrate specificity or the
CC   catalytic efficiency of the lipase. (Updated on 25-MAR-2003 to correct PF
CC   field.)
XX
SQ   Sequence 258 AA;

  Query Match             100.0%;  Score 1399;  DB 2;  Length 258;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-123;
  Matches  258;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 APLPDTPGAPFPAVANFDRSGPYTTSSQSEGPSCRIYRPRDLGQGGVRHPVILWGNGTGA 60
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db          1 APLPDTPGAPFPAVANFDRSGPYTTSSQSEGPSCRIYRPRDLGQGGVRHPVILWGNGTGA 60

Qy         61 GPSTYAGLLSHWASHGFVVAAAETSNAGTGREMLACLDYLVRENDTPYGTYSGKLNTGRV 120
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db         61 GPSTYAGLLSHWASHGFVVAAAETSNAGTGREMLACLDYLVRENDTPYGTYSGKLNTGRV 120

Qy        121 GTSGHSQGGGGSIMAGQDTRVRTTAPIQPYTLGLGHDSASQRRQQGPMFLMSGGGDTIAF 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        121 GTSGHSQGGGGSIMAGQDTRVRTTAPIQPYTLGLGHDSASQRRQQGPMFLMSGGGDTIAF 180

Qy        181 PYLNAQPVYRRANVPVFWGERRYVSHFEPVGSGGAYRGPSTAWFRFQLMDDQDARATFYG 240
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        181 PYLNAQPVYRRANVPVFWGERRYVSHFEPVGSGGAYRGPSTAWFRFQLMDDQDARATFYG 240

Qy        241 AQCSLCTSLLWSVERRGL 258
              ||||||||||||||||||
Db        241 AQCSLCTSLLWSVERRGL 258
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